The Connection

A Well Drilling Industry Newsletter

VOLUME 22 NUMBER 1 MISSOURI DEPARTMENT OF NATURAL RESOURCES FIRST QUARTER 2015

Well Installation Board News

Joint Water Meeting

On Oct. 1, 2014, members of the Well Installation Board participated in a joint meeting of the Missouri Clean Water, Safe Drinking Water, Soil and Water District commissions and Well Installation Board in Jefferson City. Members heard presentations about key water-related functions of the Department of Natural Resources, boards and commissions, including water resource challenges and opportunities, and about planning efforts for the future of water resources for Missouri. Members participated in discussions to provide input about the department's planning efforts, suggestions for moving forward and opportunities for continued coordination among the board and commissions.

Quarterly Meeting

The Well Installation Board held its quarterly meeting Friday, Nov. 21, 2014, in Rolla. The Board received updates about program and section activities and proposed rulemakings.

Jacob Westen, Assistant Attorney General, gave a brief presentation about Missouri One Call law and requirements and will give a more in-depth presentation at the next meeting.

The next quarterly meeting is scheduled for Monday, Feb. 23, 2015, at 10 a.m., at the Country Club Hotel and Spa in Lake Ozark. This meeting will be held in conjunction with the Missouri Water Well Association's Annual Conference. The May meeting will be held Thursday, May 21, 2015, in the Mozarkite Conference Room, Missouri Geological Survey, 111 Fairgrounds Road, Rolla.

Commissioner Training

The Well Installation Board was well-represented at the department's board, council and commission member training Nov. 11, 2014, in Springfield. The training covered topics such as budget planning, department strategic plan, Sunshine Law, and the rulemaking process.

Important Notice

Effective Jan. 1, 2015, Direct Expansion (DX) heat pump systems using copper tubing and refrigerants are no longer allowed under Missouri Well Construction Rules, per 10 CSR 23-5.070(1). During the Well Installation Board meeting at Sikeston in Aug. 2014, the Well Installation Board approved the use of the system only with departmental approval through the variance process.

Permit Renewal Changes

The department is moving to a permit cycle in which all permits are due on the same date. Therefore, all well, pump and heat pump installation contractor permits will expire Oct. 1, 2015. This change will increase efficiency in state government and will be less confusing and cumbersome for companies that have multiple employees who hold permits that expire at different times during the calendar year. In order to begin this process, permit fees during the next year will be pro-rated to reflect the new expiration date. The total amount due will be noted at the bottom of all letters. Please submit the proper amount to the department.

Contractors are advised to renew permits before the expiration date. Failing to renew before the permit expires will result in a 40 percent late fee, if renewed within 30 days of expiration. Permits that have been expired more than 30 days will be cancelled. A contractor who continues working without a permit is in violation of 10 CSR 23-1.090. If a permit is cancelled, the permittee will have to re-apply for a permit, take the appropriate test, and may be required to post a bond and be required to prenotify all work for one year.

DNR Realignment

The Department of Natural Resources recently made some organizational changes. The primary reason for making these changes was to combine areas of common function and provide better service to citizens and the regulated community.

MISSOURI DEPARTMENT OF NATURAL RESOURCES

The following changes went into effect December 1, 2014:

- The Water Resources Center joined the Missouri Geological Survey.
- The Land Reclamation Program joined the Missouri Geological Survey.
- The Soil and Water Conservation Program joined the Division of Environmental Quality.
- The Water Protection Program's Nonpoint Source Management Unit joined the Soil and Water Conservation Program.

These changes will not affect how the Wellhead Protection Section operates.

Educational Water Well

In April 2013, the Department of Natural Resources installed a demonstration water well, located at the Missouri Geological Survey office in Rolla. The 200-foot-deep well was constructed using clear well casing, and it may be the first well of its kind in Missouri. This well offers a unique opportunity for students, educators, well drillers and others to literally see the underground workings of a water well and to observe the interaction of well construction materials used to protect Missouri's groundwater resources and ensure clean, safe drinking water. According to Brian Gordon of Georg Fischer Harvel, manufacturer of the casing, "Our clear PVC is commonly used in algae farming, double containment, and a variety of industrial applications where flow indication is important. We are excited to see it used for this purpose. It's always rewarding to see new applications for our plastic piping systems."

The Missouri Geological Survey's demonstration well has four different grout types placed in the annulus as shown in the accompanying well diagram. The lowermost 60 feet of the annulus was sealed using a tremie pipe to pump neat cement, bentonite slurry, and bentonite slurry and cement mix. The uppermost 60 feet was filled from the surface (gravity fed) with solid bentonite chips and bentonite granules, each approximately three-eighths and one-sixteenth of an inch, respectively. By lowering a down-hole video camera into the well, the various grout types can be seen through the clear casing. This technology allows staff to determine the ability of each grout type to seal the annulus. While all grout types and placement methods used in this well appeared to adequately seal the annulus from vertical fluid movement, those placed via tremie pipe more uniformly filled the annular space.

During 2014, students and private citizens visited the Missouri Geological Survey for educational outings to learn about the state's geologic and hydrologic resources. "Students and teachers alike indicate they enjoy learning about this unique water well and our role in protecting groundwater," said Hylan Beydler, Information Officer with the Missouri Geological Survey. "Use of the down-hole camera at the demonstration well provides visitors clear insight about one of our most precious resources – water." The demonstration well was showcased in the fall 2014 issue of Missouri Resources. The article can be accessed online at dnr.mo.gov/magazine/docs/mr-fall-2014.pdf#page=10.

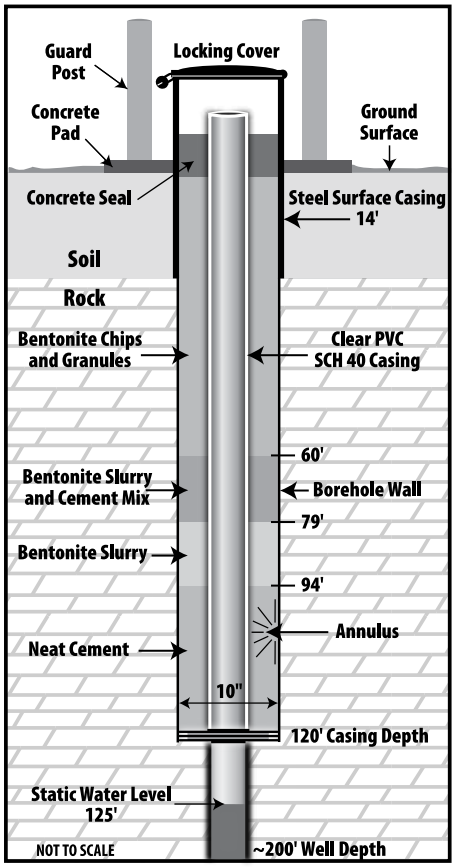


Diagram of demonstration well.

Geotechnical Well or Boring

The terms, "geotechnical well" or "geotechnical boring" are broadly used by industry to cover numerous excavations. A geotechnical well or boring is a type of monitoring well regulated by the Missouri Well Construction Rules (MWCR). However, certain geotechnical wells are exempt. There has been confusion in which circumstances an excavation or boring is exempted from MWCR. The following definition of a geotechnical well or boring clarifies which geotechnical wells or borings are exempt.

A geotechnical well or boring means a monitoring well used to collect or evaluate subsurface data to determine the properties of geologic materials such as type, chemical composition, compressibility, strength or structure. However, geotechnical borings for construction foundation data, wells drilled in the construction phase of piers, shafts, caissons, mini-piles, soil and rock anchors, soil and rock grouting procedures, on surface water impoundment structures, pressure relief wells, roads, buildings or other construction sites that utilize drilling within the structure to be built are exempt from the MWCR. It is recommended for any excavation or borehole that is exempt from MWCR to be plugged, excavated or incorporated into the construction project. Any well, boring or excavation that is less than 10 feet deep is not regulated.

Receive Updates Via GovDelivery

Get Updates on this Issue

GovDelivery allows subscribers to receive updates about topics relating to Wellhead Protection. Multi-colored envelope icons are available on many of the department's Web pages identifying this service. Individuals are able to create a personalized subscription list of content. When content changes, such as rule updates, GovDelivery sends email or text alerts informing subscribers. Get started at dnr.mo.gov/geology/geosrv/wellhd/ and click on the envelope, enter your email address or sign in using social media, and choose the topics for which you would like to receive updates.

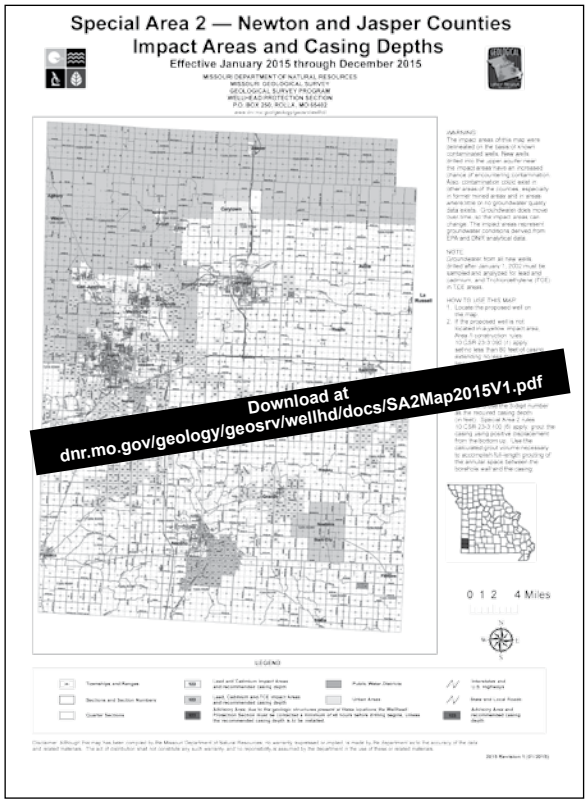
Special Area 2

Each year the Wellhead Protection Section staff members review and update the casing depth map for Special Area 2. Data that may affect an area is collected by the well or pump contractor when a new well is drilled or an old well deepened. Data also is collected by the U.S. Environmental Protection Agency and environmental contractors during environmental investigations within Newton and Jasper counties. This data is collected on both new and existing wells. New impact areas are added and if available, any published updates for area roads are added to the revised map.

The current map is valid from January 2015 until the revised map is issued for the next calendar year (2016). The map is reviewed and updated in November and early December for the next calendar year. The effective dates are noted on each map. Contractors are responsible for using the correct map when drilling in Newton and Jasper counties; all known impact areas may not be highlighted on older versions. The map for calendar year 2015 contains new impact areas, which are listed below.

Township North	Range West	Section	Quarter Section	Area Type	Minimum Casing	Contaminant To Sample For
26	31	28	NE	IMPACT	420	LEAD
26	31	28	SE	IMPACT	420	LEAD
27	33	25	SE	IMPACT	465	LEAD, CADMIUM TCE, DCE, VC
29	32	21	SE	IMPACT	410	LEAD, CADMIUM
29	32	28	NE	IMPACT	460	LEAD, CADMIUM

An electronic copy of the Special Area 2 Map is online at dnr.mo.gov/geology/geosrv/wellhd/wellpub.htm, or you may purchase a map from the Missouri Geology Store at missourigeologystore.com



Online Updates

During the past two years, the section has been working to expand the number of online services available to contractors and the public. These services increase efficiency and convenience for the general public, contractors and staff. Services currently available online include: permit renewal, all certification and registration form submittal, and search capabilities through our Well Information Management System (WIMS). The search mechanism allows users to search for permitted companies, contractors and wells drilled in the state. These services are available at dnr.mo.gov/mowells.

The online permitting feature has been changed to accommodate the new permitting procedure which requires all permits to expire Oct. 1, 2015. All permit fees have been prorated based on current expiration date.

Changes also were made to allow for easier online entry of monitoring well certification and registration forms. Most of the validations have been removed or are less restrictive. This change is anticipated to make entry into the system simpler. Because of this change, the system no longer issues a certification or registration number for records submitted online.

The online prenotification form was updated so that an email is sent automatically to the contractor upon completion and submittal of the prenotification form. This enhancement provides contractors copies for their files.

A fairly new reporting tool was added to the section's Web page that allows reporting of abandoned wells, including hand dug, drilled, monitoring, and oil wells. The "Report an Environmental Concern" form can be found at dnr.mo.gov/concern. The link is also located below the contact information on the section's Web page at dnr.mo.gov/geology/geosrv/wellhd/. Users can report abandoned wells anonymously, but detailed location information is required to allow for follow up.

Earlier this year, the Missouri Geological Survey launched GeoSTRAT, the Geosciences Technical Resource Assessment Tool, which makes geologic and hydrologic data available to contractors, the general public and others online 24/7. GeoSTRAT is updated yearly. The most recent update was in January of this year and included a change that all wells, whether certified or not, can be located on the map. Oil and gas wells also were added, which may be of interest to contractors working in oil and gas producing areas of the state.

GeoSTRAT can be used to locate wells, drilling areas, geologic logs and much more using the interactive map. It can be used for data assessments in various disciplines such as geologic assessments, environmental consulting and engineering, local and regional planning and others.

The tool can be found at dnr.mo.gov/geology/geostrat.htm. A Web browser and the free Google Earth plug-in must be downloaded to use GeoSTRAT. GeoSTRAT it best viewed using Google Chrome or Firefox browsers.

Additionally, staff are working to provide online testing for a restricted permit, allowing changes to be made online for permitted vehicles, and online submittal of the variance and casing depth request forms. Watch for these new items on our Web page at dnr.mo.gov/geology/geosrv/wellhd/.

Geothermal Heat Pump Well and System Installations

The following is intended to clarify issues concerning geothermal heat pump well and system installations and forms that must be submitted. Forms may be found online at dnr.mo.gov/forms/index.html#wellheadprotection.

Heat pump prenotification

Prenotification is required for any geothermal well less than 200 feet deep that is grouted using a series of plugs rather than using full-length grout. Prenotification also is required by anyone placed on probation who is conducting any regulated work, including installing heat pumps. To eliminate confusion about the two requirements, the prenotification form will be modified to include a box to differentiate between who is notifying for probation work and who is notifying for using the plug method. The new form is anticipated to be online by spring 2015. An online tool is available to submit prenotification, and this tool also will send an email copy of the submitted pre-notification to the contractor. The notification must be submitted at least 48 hours before the work is scheduled to begin and must contain the county, latitude and longitude coordinates (GPS location), owner's name, physical location and the date the work is expected to begin. If you are unable to physically obtain a GPS reading, you can get an approximate GPS location by using the GeoSciences Technical Resource Assessment Tool, or GeoSTRAT (see sidebar for instructions). If you do not know the owner's name, enter the name of the HVAC company with which you are working. In this situation, a copy of the prenotification form must accompany the certification record. If you are not able to begin work within 14 days after the date indicated on the prenotification form, you must call the Wellhead Protection Section or submit a revised prenotification form. Also, call the section as soon as possible if a job is cancelled after a prenotification form has been submitted. All prenotification forms not matched to a certification record within 90 days of the work date indicated on the prenotification form will result in staff contacting the driller and/or HVAC company.

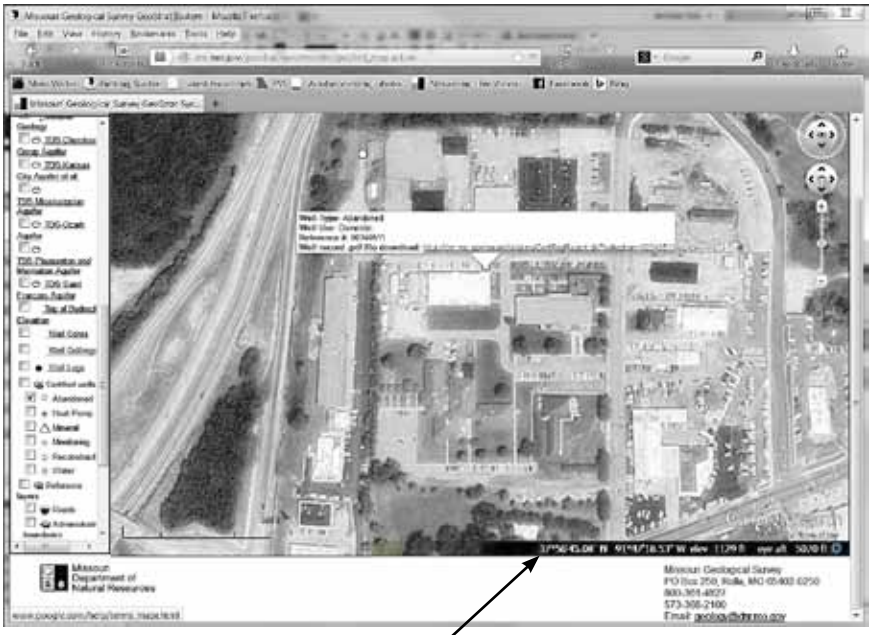
Heat pump certification form

The heat pump well certification record (Closed Loop Heat Pump Certification Record, form 780-1413) has been revised. The signature box for the primary contractor was replaced with a box for the HVAC contractor. The name of the HVAC company is necessary to ensure permit requirements are met. HVAC contractors are required to hold a restricted heat pump permit if any of the following conditions exist:

- They are placing heat exchange fluid in the loops, or joining and connecting the loops to the HVAC system.
- They are serving as the primary contractor for the job and are subcontracting the geothermal drilling company for their client.
- They are directing the work of the well installation contractor.

On forms with publication dates 08-13 and 12-13, put the HVAC company name in the "Primary Contractor's Name" box. This box must be completed on every record, regardless of the permit status of the company.

Another change to the heat pump record is the removal of the "Date Well Drilling Completed" box. This date box was removed to eliminate confusion concerning which date was required for certification. Late fees are determined by the "Date Heat Pump Installation Completed" (found on forms with publication date 08-13) or "Heat Pump System Completion Date" (found on forms with publication dates 12-13 and 07-14). This date is defined as the completion of the system when the driller has completed his portion of the job. For example, if a driller is contracted to only drill the holes, the date the drilling is completed is the heat pump system completion date. If a driller is contracted to drill the holes and fill the loops with fluid, the day the loops are flushed and filled is the heat pump system completion date. Please be aware a letter may be sent concerning a missing record if the date the loops are filled is 90 days or more after the date the drilling was reported to begin on the prenotification. If this happens, please contact the section to discuss the situation and a tentative date for completion.



Location of latitude and longitude coordinates.

Using GeoSTRAT

A Web browser and the free Google Earth plug-in must be downloaded to use GeoSTRAT GeoSTRAT can be found at dnr.mo.gov/geostrat/. GeoSTRAT is best viewed using Google Chrome or Firefox Web browsers. Property locations can be found by entering the 911 address in the search box at the top of the map. Hold the cursor over the drilling site to display the latitude and longitude coordinates at the bottom right-hand side of the screen. If the coordinates are not visible, bring the scroll bar on the right downward.

Welcome Contractors

The following individuals are now part of the Missouri Department of Natural Resources' permitted contractor community:

Alferman Air – Neal Fuhr
Antea Group – Matthew Cauthon
BBJ Group – Leah LaBarge
ConeTec Inc – Bruce Miller
Gredell Engineering – Ken Ewers
Hoffmann Brothers Heating & Air – Todd Ehmke
Lawhon Construction – Rick Akers
Rustemeyer Plumbing & Heating – Troy Hayward
Schroepfer Well Drilling – Dillon Schroepfer
Sonic Drilling Services – David Schrecongost
Terracon – Mark Dierke, Jessica Shumway
The Doe Run Company – Chadley Hays
Wayne's Heating & Cooling – Mike Hansen

Welcome Apprentice Contractors

The following individuals are now part of the Missouri Department of Natural Resources' permitted apprentice contractor community:

Hampton Pump Service – Kyle Hays
Harper Drilling – Michael Mullaney
M & T Drilling – Daniel Snider
PSA Environmental – Micah Capobianco

Farewell

The people addressed below are no longer permitted to operate as contractors according to the Water Well Drillers Act and Missouri Well Construction Regulations:

Aecom Environment – Matthew Drake
Botts and Tye Corp – Charles Childers
Bowser-Morner – Timothy Boehmer
Burns & McDonnell – Nathan Kilgore
Dave Alford Construction – David Alford
Durbin Enterprises – Jared Miller
Goggins Drilling – Lonnie Goggins
Harker Plumbing – Kent Schmid
Jerry Williams Pump – David Hallemann
Koehler Engineering – Simon Cort
MoDNR – Jonathan McKinney, Paul Meyer
Pelton Pump – Norman Pelton
Premier Demolition – William Buell
Seagull Environmental – Lynn Parman
Terracon – Allen Nash
URS Corporation – Cory Yates

Contractor and Apprentice Well and Pump Installation Testing Schedule

All tests begin at 9 a.m.

The following testing dates are scheduled at the Missouri Geological Survey, 111 Fairgrounds Road, Rolla.

Jan. 14, 2015	July 8, 2015
Feb. 11, 2015	Aug. 12, 2015
March 11, 2015	Sept. 16, 2015
April 8, 2015	Oct. 14, 2015
May 13, 2015	Nov. 18, 2015
June 10, 2015	Dec. 9, 2015

Testing dates may be modified if necessary.

Please bring a picture ID with you to the testing site.

If you are applying for a non restricted permit, please be sure to bring your global positioning unit (GPS) and operating manual to the test site. Your GPS unit should be programmed to read in degrees, minutes, and seconds in accordance with 10 CSR 23-3.060(5).

If you have questions concerning this schedule or testing please call 573-368-2450. Persons with disabilities who may require special services may contact Jeannie Hoyle at the number above.

Responsible Party Information

Each company will receive a letter asking the company to identify a responsible party. The responsible party for a company could be the owner, manager or primary person responsible for the permitted contractors in the company. A responsible party is not required to hold a permit from the department. The responsible party should serve as the main point of contact for the company. This person will receive mail from the department that may affect other permittees employed by the company. For example, if company A has five permitted contractors working for the company, the department may send only one letter to the company's responsible party for all five contractors. Examples may include notification of stakeholder meetings, information regarding online services, or *The Connection n*ewsletter.

Most importantly, the responsible party may share equal liability for corrective action of a violation(s) that may have been committed by another person employed with the same company. For example, Mr. Smith owns XYZ Drilling Company. Jim is employed by XYZ Drilling Company as a permitted well installation contractor. Jim drills a well in violation of current rules, quits the company and no longer drills wells. Mr. Smith is the responsible party for the company, and will be required to resolve any outstanding issues regarding Jim's rule violation. Wellhead Protection staff also will request email addresses to ensure company contact information is accurate.

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Well Online Services: dnr.mo.gov/mowells/

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- **Sheri Fry – Compliance and Enforcement**
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- **Jeannie Hoyle – Permitting Clerk**
  Permitting, testing and apprentice information.
  573-368-2450 • jeannie.hoyle@dnr.mo.gov
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The Connection is published by the Missouri Department of Natural Resources' Missouri Geological Survey. Suggestions, ideas and comments concerning this newsletter are welcome. Send comments to: Missouri Department of Natural Resources' Missouri Geological Survey, Wellhead Protection Section, PO Box 250, Rolla, MO 65402-0250, phone: 573-368-2165 or fax: 573-368-2317.